

# Implementing ADS-B in the U.S.

March 13, 2002

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# Why Do We Want ADS-B in the U.S.?



#### Government

- Increased capacity & efficiency while improving safety
- High quality, uniform surveillance, including non-radar airspace
- Improved support of ATC automation tools

#### Users - General Aviation

- Increased safety through improved situational awareness
- Access to beneficial services (FIS-B, Non-radar ATC)

#### Users - Commercial

- Increased efficiency & capacity through beneficial applications
  - Terminal area (beginning in near-term)
  - En route (mid long term)

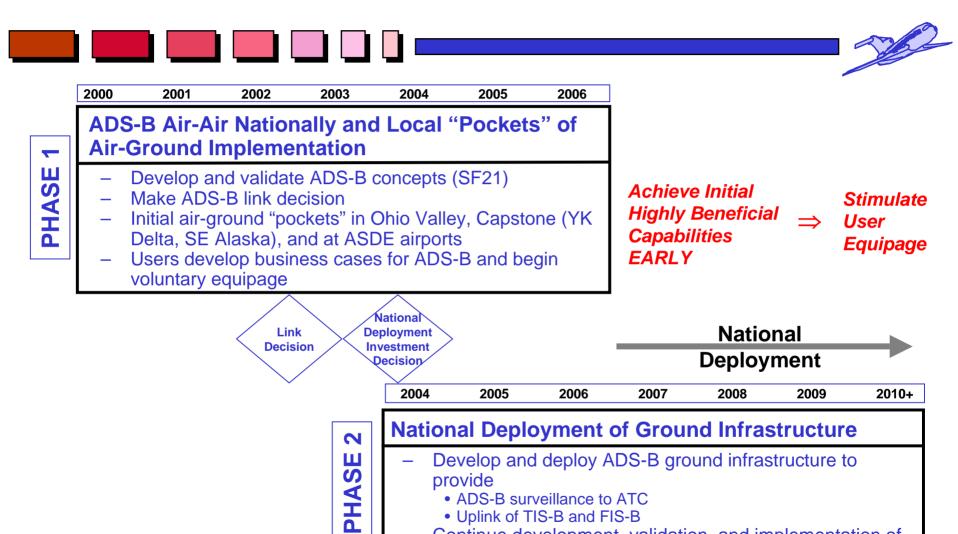
# ADS-B Applications in the U.S.



# From the FAA's Operational Evolution Plan (OEP) and RTCA's Roadmap for Free Flight Enhancements -

- Near to Mid Term:
  - Enhance See and Avoid
  - FAA OEP solutions (in pockets):
    - Coordinate for Efficient Surface Movement
    - Enhance Surface Situational Awareness
    - Maintain Runway Use in Reduced Visibility
    - Space Closer to Visual Standards
- Far Term (NAS-wide):
  - Improve Terminal Operations in Low Visibility
  - Enhance En Route Air-to-Air Operations
  - Provide ADS-B Surveillance in Non-Radar Airspace
  - Establish ADS-B Separation Standards

# ADS-B: Two Implementation Phases



Uplink of TIS-B and FIS-B

Continue development, validation, and implementation of

ADS-B applications (terminal and en route)

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# Accomplishments to Date



- Safe Flight 21 Evaluations
  - Ohio River Valley testbed (Memphis, Louisville)
- Capstone
  - Radar-like services (Bethel, AK region)
- Analyses and Tests
  - Preliminary Costs and Benefits
  - TLAT (with Eurocontrol)
  - Safety assessment
  - Vulnerability assessment
  - Flight Tests (LA, FAATC, Frankfurt)

#### What Data Do We Have?



#### Technical/Transitional

- TLAT report (FAA/Eurocontrol)
- Operational Safety Assessment
- Additional Data:
  - Follow-on Link Simulation Results (1090 ES, UAT, VDL Mode 4)
  - Additional Flight Test Results (1090 ES)
  - Additional Lab Test Data (1090 ES, UAT)
  - Assessment of Application Supportability by Link
  - Assessment of Architectural Transition Paths
  - Results of Vendor Surveys
  - Initial Vulnerability Assessment

#### Financial

- Pre-Investment Cost Benefit Analysis
- Additional Data:
  - Vendor Cost Surveys
  - Eurocontrol Cost/Benefit Data
  - DoD Cost Study
  - Reassessment of User Equipage/Priorities

### What Does an ADS-B Link Decision Mean?



- Decision reaffirms FAA's plan to implement ADS-B (air-air, airground) throughout the NAS
- Decision commits the FAA to work with the user community to develop and implement ADS-B enabled applications
- Decision reaffirms FAA's support to develop, as necessary,
   MOPS, ACs, TSOs, standards, pilot & controller procedures
- Decision identifies the technology to be implemented in the ground infrastructure
- Decision focuses vendor's development efforts for ADS-B avionics

## Next Steps



- Continue Safe Flight 21 concept validation, Capstone activities
- Complete formal coordination within FAA, U.S. aviation community, and Eurocontrol
- LINK DECISION ANNOUNCEMENT IN MID-2002